AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An optical system for an optical disc drive, comprising:

a light source that emits first and second light beams, said first and second light beams utilized for recording and/or reproducing data to/from first and second optical discs, respectively, the second optical disc having a thicker protective layer and lower recording density than the first optical disc;

an objective lens provided with a diffraction structure, said diffraction structure being designed to focus said first light beam on a recording layer of the first optical disc and said second light beam on a recording layer of the second optical disc; and

a collimator lens disposed between said light source and said objective lens to adjust diverging/converging angle of said first and second light beams entering said objective lens,

wherein change in spherical aberration of said first light beam caused by wavelength deviation from a design wavelength due to individual specificity of said light source is corrected by adjusting the diverging/converging angle of said first light beam emerging from said collimator lens,

wherein said collimator lens is located between first and second optimum positions, the spherical aberration of said first light beam converged onto the recording layer of the first optical disc being minimized when said collimator lens is located at said first optimum position, the spherical aberration of said second light beam converged onto the recording layer of the second optical disc being minimized when said collimator lens is located at said second optimum position, ~~and~~

wherein the collimator lens is fixed at a predetermined location during assembly of the optical system,

wherein said diffraction structure is designed so that change in spherical aberration caused by said objective lens in accordance with wavelength variation of said first light beam is generated mainly by third-order spherical aberration, and

wherein said diffraction structure is designed so that change in fifth or higher order component of the spherical aberration caused by said objective lens in accordance with wavelength variation of said first light beam is less than 0.0005 λrms/nm.

2. (Original) The optical system according to claim 1, wherein said diffraction structure is designed so that change in spherical aberration caused by wavelength variations of said first and second light beams due to temperature variation of said light source compensate for change in spherical aberration caused by temperature variation of said objective lens.

3. (Cancelled)

4. (Currently Amended) The optical system according to claim [[3]] 1, wherein said diffraction structure is designed so that change in fifth or higher order component of the spherical aberration caused by said objective lens in accordance with wavelength variation of said first light beam is less than one fifth of the third-order component thereof.

5. (Cancelled)

6. (Original) The optical system according to claim 1, wherein said light source includes first and second light emitting elements for generating said first and second light beams, respectively, said first and second light emitting elements being integrally formed.

7. (Cancelled)

8. (Cancelled)

9. (Original) The optical system according to claim 1, wherein said objective lens has a numerical aperture for said first light beam not less than 0.63.

10. (Currently Amended) An optical system for an optical disc drive, comprising:

first and second light sources emitting first and second light beams, respectively, said first and second light beams utilized for recording and/or reproducing data to to/from first and second optical discs, respectively, the second optical disc having a thicker protective layer and lower recording density than the first optical disc;

an objective lens provided with a diffraction structure, said diffraction structure being designed to focus said first laser beam on a recording layer of the first optical disc and said second laser beam on a recording layer of the second optical disc; and

first and second collimator lenses disposed between said objective lens and said first and second light sources, respectively, so as to adjust diverging/converging angles of

said first and second light beams entering said objective lens;

wherein said first and second collimator lenses are located so as to respectively correct change in spherical aberration of said first and second light beams caused by wavelength deviations from design wavelengths of said first and second light beams due to individual specificity of said first and second light sources,

wherein the first collimator lens is located at a first optimum position so that the spherical aberration of said first light beam converged onto the recording layer of the first optical disc is minimized,

wherein the second collimator lens is located at a second optimum position so that the spherical aberration of said second light beam converged onto the recording layer of the second optical disc is minimized, ~~and~~

wherein the first and second collimator lenses are fixed at the first and second optimum positions, respectively, during assembly of the optical system,

wherein said diffraction structure is designed so that change in spherical aberration caused by said objective lens in accordance with wavelength variation of said first light beam is generated mainly by third-order spherical aberration, and

wherein said diffraction structure is designed so that change in fifth or higher order component of the spherical aberration caused by said objective lens in accordance with wavelength variation of said first light beam is less than 0.0005 λrms/nm.

11. (Original) The optical system according to claim 10, further comprising an optical element disposed between said objective lens and said first and second collimator lenses, said optical element combining optical paths of said first and second light beams

passed through said first and second collimator lenses.

12. (Original) The optical system according to claim 10, wherein said diffraction structure is designed so that change in spherical aberration caused by wavelength variations of said first and second light beams due to temperature variations of said first and second light sources compensate for change in spherical aberration caused by temperature variation of said objective lens.

13. (Original) The optical system according to claim 10, wherein said objective lens has a numerical aperture not less than 0.63 for said first light beam.

14 – 22 (Cancelled)

23. (Currently Amended) An optical system for an optical disc drive, comprising:

a light source that emits first and second light beams, said first and second light beams utilized for recording and/or reproducing data to/from first and second optical discs, respectively, the second optical disc having a thicker protective layer and lower recording density than the first optical disc;

an objective lens provided with a diffraction structure, said diffraction structure being designed to focus said first light beam on a recording layer of the first optical disc and said second light beam on a recording layer of the second optical disc; and

a collimator lens disposed between said light source and said objective lens to adjust diverging/converging angle of said first and second light beams entering said

objective lens,

wherein change in spherical aberration of said first light beam caused by wavelength deviation from a design wavelength due to individual specificity of said light source is corrected by adjusting the diverging/converging angle of said first light beam emerging from said collimator lens,

wherein the diverging/converging angle of said first light beam is adjusted so as to minimize spherical aberration of said first light converged onto the recording layer of the first optical disc, ~~and~~

wherein the collimator lens is fixed at a predetermined location during assembly of the optical system,

wherein said diffraction structure is designed so that change in spherical aberration caused by said objective lens in accordance with wavelength variation of said first light beam is generated mainly by third-order spherical aberration, and

wherein said diffraction structure is designed so that change in fifth or higher order component of the spherical aberration caused by said objective lens in accordance with wavelength variation of said first light beam is less than 0.0005 λrms/nm.

24. (Previously Presented) The optical system according to claim 23, wherein said diffraction structure is designed so that change in spherical aberration caused by wavelength variations of said first and second light beams due to temperature variation of said light source compensate for change in spherical aberration caused by temperature variation of said objective lens.

25. (Cancelled)

26. (Currently Amended) The optical system according to claim [[25]] 23, wherein said diffraction structure is designed so that change in fifth or higher order component of the spherical aberration caused by said objective lens in accordance with wavelength variation of said first light beam is less than one fifth of the third-order component thereof.

27. (Cancelled)

28. (Previously Presented) The optical system according to claim 23, wherein said light source includes first and second light emitting elements for generating said first and second light beams, respectively, said first and second light emitting elements being integrally formed.

29. (Previously Presented) The optical system according to claim 23, wherein said objective lens has a numerical aperture for said first light beam not less than 0.63.